A PLANAR LIGHTWAVE CIRCUIT HAVING AN INTEGRATED DISPERSION COMPENSATOR USING A FOURIER FILTER

ABSTRACT OF THE DISCLOSURE

An integrated dispersion compensator planar lightwave circuit (PLC). The PLC includes an input for receiving a fiber optic signal. The input couples the signal to a Fourier filter. The filter is configured to add a phase compensation to the signal to correct a chromatic dispersion of the signal. An output is coupled to transmit the dispersion compensated signal from the Fourier filter to other components on the PLC or to other external devices. The Fourier filter can be implemented using a tap delay filter. The tap delay filter can be implemented by using a plurality of delay lines for implementing the phase compensation for the signal. The delay lines can be implemented using Mach Zehnder couplers, wherein the Mach Zehnder couplers are configured to distribute power from signal between the delay lines and to recombine the power from the delay lines to generate the dispersion compensated signal. A plurality of thermal optic phase shifters can be coupled to the delay lines to generate the phase compensation.